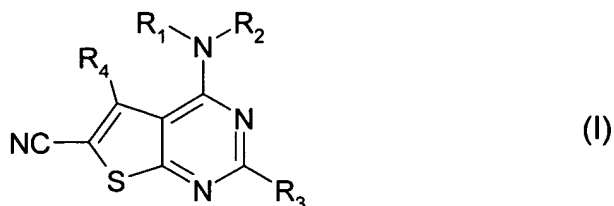


AMENDMENTS TO THE CLAIMS

Please amend claims 1-12, 14, and 18-20 as indicated below. Please also add new claim 21 and cancel claims 13 and 15-17. This listing of claims will replace all prior versions and listings of claims in the application. Deletions appear in ~~strike through font~~, and additions are underlined.

Complete listing of claims

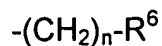
- 1) (Currently amended) A compound of formula (I):



or a pharmaceutically acceptable salt thereof wherein

- R₁ and R₂ either
 - (a) independently represent :
 - (i) a hydrogen atom
 - (ii) a group ~~selected~~chosen from ~~an~~ alkyl, alkenyl ~~or~~ and alkynyl groups, ~~which~~ wherein each alkyl, alkenyl and alkynyl group is independently ~~are~~ optionally substituted by one or more substituents ~~selected~~chosen from halogen atoms, ~~and~~ hydroxy, alkoxy, aryloxy, alkylthio, hydroxycarbonyl, alcoxycarbonyl, mono- ~~or~~ and di-alkylaminoacyl, oxo, amino, and mono- ~~or~~ and di-alkylamino groups;
 - or

(iii) a group of formula

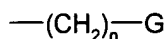


wherein n is an integer from 0 to 4 and R⁶ represents a cycloalkyl or cycloalkenyl group;

or

(b) R₁ and R₂ form, together with the nitrogen atom to which they are attached, a 3- to 8-membered ring comprising from 1 to 4 heteroatoms ~~selected~~chosen from nitrogen, oxygen and sulphur, which ring is saturated or unsaturated and optionally substituted by one or more substituents ~~selected~~chosen from halogen atoms, ~~and~~ alkyl, hydroxy, alkoxy, acyl, hydroxycarbonyl, alkoxycarbonyl, alkylenedioxy, amino, mono- ~~or~~ and di-alkylamino, mono- ~~or~~ and di-alkylaminoacyl, nitro, cyano ~~or~~ and trifluoromethyl groups;

- R₃ is a group of formula



wherein n is an integer from 0 to 4 and G represents a monocyclic or bicyclic aryl or heteroaryl group comprising from zero to four heteroatoms which group is optionally substituted by one or more substituents ~~selected~~chosen from:

- (i) halogen atoms;
 - (ii) alkyl and alkylene groups, ~~which~~ wherein each alkyl and alkylene group
~~are~~ is independently optionally substituted by one or more substituents
~~selected~~ chosen from halogen atoms; and
 - (iii) phenyl, hydroxy, hydroxyalkyl, alkoxy, alkylendioxy, aryloxy, alkylthio,
amino, mono- ~~or~~ and di-alkylamino, acylamino, nitro, acyl,
hydroxycarbonyl, alkoxycarbonyl, cyano, difluoromethoxy ~~or~~ and
trifluoromethoxy groups;
- R₄ represents a hydrogen atom, ~~or~~ an alkyl or an aryl group;

with the proviso that ~~it~~ the compound of formula (I) is not 5-methyl-2-phenyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile.

2) (Currently amended) A compound according to claim 1, wherein R₁ and R₂ either:

- a) independently represent hydrogen or a groups ~~selected~~ chosen from an
alkyl, alkenyl ~~or~~ and alkynyl groups; wherein each alkyl, alkenyl and
alkynyl group independently has having from 1 to 4 carbon atoms and
each is independently ~~being~~ optionally substituted by one hydroxy group
or a cycloalkyl groups having from 3 to 6 carbon atoms;

or

- b) R₁ and R₂ form, together with the nitrogen atom to which they are
attached, a 4- to 6-membered ring having ~~comprising~~ from 1 to 2

heteroatoms ~~selected~~chosen from nitrogen, oxygen and sulphur, which ring is optionally substituted by one or two C₁-C₄ alkyl groups, wherein each C₁-C₄ alkyl group is independently ~~which are themselves~~ unsubstituted or substituted by one hydroxy group.

3) (Currently Amended) A compound according to claim 1, ~~any preceding claim~~ wherein R₁ either:

a) represents a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms

or

b) forms together with R₂ and with the nitrogen atom to which they are attached, a 4- to 6-membered ring ~~comprising~~ having from 1 to 2 heteroatoms ~~selected~~chosen from nitrogen and oxygen, which ring is optionally substituted by one or more substituents ~~selected~~chosen from halogen atoms, ~~and-alkyl or~~ and acyl groups;

4) (Currently Amended) A compound according to claim 1, ~~any preceding claim~~ wherein R₂ either:

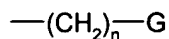
a) represents a group ~~selected~~chosen from ~~an~~-alkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl ~~or~~ and di-alkylamino groups;

or

b) forms together with R₁ and with the nitrogen atom to which they are attached, a 4- to 6-membered ring comprising from 1 to 2 heteroatoms ~~selected~~chosen from nitrogen and oxygen, which ring is optionally

substituted by one or more substituents ~~selected~~chosen from halogen atoms, ~~and alkyl or~~ and acyl groups;

- 5) (Currently Amended) A compound according to claim 1, ~~any preceding claim~~ wherein R₃ represents a group of formula



wherein n is an integer from 0 to 4 and G represents a monocyclic aryl or heteroaryl group comprising zero or one heteroatoms, which aryl or heteroaryl group is optionally substituted by one or more substituents ~~selected~~chosen from:

- (i) halogen atoms; and
- (ii) unsubstituted C₁-C₈ alkyl, unsubstituted C₁-C₈ alkoxy, unsubstituted C₁-C₃ alkylendioxy, nitro, trifluoromethyl and unsubstituted alkoxy carbonyl groups having a C₁-C₈ alkyl portion;

- 6) (Currently Amended) A compound according to claim 1, ~~any preceding claim~~ wherein R₄ is hydrogen, an unsubstituted C₁-C₈ alkyl or an unsubstituted C₅-C₁₄ aryl group.

- 7) (Currently Amended) A compound according to claim 6, wherein R₄ represents an unsubstituted C₁₋₄-C₁-C₄ alkyl group.

- 8) (Currently Amended) A compound according to claim 1, ~~any preceding claim~~ wherein R₃ represents a group ~~selected~~chosen from phenyl, pyridyl ~~or~~ and benzyl groups, ~~which~~ wherein the phenyl, pyridyl and benzyl groups are optionally substituted by one or more substituents ~~selected~~chosen from:

- (i) halogen atoms; and

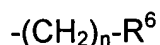
- (ii) unsubstituted C₁-C₈ alkyl, unsubstituted C₁-C₈ alkoxy, unsubstituted C₁-C₃ alkylendioxy, nitro, trifluoromethyl and unsubstituted alkoxycarbonyl groups having a C₁-C₈ alkyl portion;

9) (Currently Amended) A compound according to claim 8, wherein R₃ represents a phenyl or benzyl group substituted by one, two or three C₁-C₆ alkoxy groups.

10) (Currently amended) A compound according to claim 9 wherein R₁ represents a hydrogen atom and R₂ represents

- (i) a group ~~selected~~chosen from an alkyl, alkenyl or ~~and~~ alkynyl groups, ~~which are~~ wherein each alkyl, alkenyl and alkynyl group is independently optionally substituted by one or more substituents ~~selected~~chosen from halogen atoms, ~~and~~ hydroxy, alkoxy, aryloxy, alkylthio, hydroxycarbonyl, alcoxycarbonyl, mono- or ~~and~~ di-alkylaminoacyl, oxo, amino, ~~and~~ mono- or ~~and~~ di-alkylamino groups; or

- (ii) a group of formula



wherein n is an integer from 0 to 4 and R⁶ represents a cycloalkyl or cycloalkenyl group.

11) (Currently amended) A compound according to claim 1 chosen from ~~which~~ ~~is one of~~:

4-(4-Ethylpiperazin-1-yl)-5-methyl-2-phenylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(4-Ethylpiperazin-1-yl)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-phenylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-phenyl-4-piperidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-nitrophenyl)-4-piperidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-piperidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(4-nitrophenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-phenyl-4-piperazin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-pyrrolidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-piperazin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-nitrophenyl)-4-piperazin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dibutylamino)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Chlorophenyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(4-nitrophenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Chlorophenyl)-4-(diethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-2-(3,4-dimethoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dimethylamino)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Chlorophenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-[methyl(prop-2-ynyl)amino]thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-4-[ethyl(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-methylphenyl)-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-[4-(trifluoromethyl)phenyl]thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-methylphenyl)-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-[4-(trifluoromethyl)phenyl]thieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(4-methylphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-4-(diethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-5-methyl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-Benzyl-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-morpholin-4-yl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-5-methyl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-5-methyl-2-(4-methylphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-4-(dimethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-5-methyl-4-(propylamino)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-Benzyl-4-(diethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-phenylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-morpholin-4-yl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)methylamino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxyphenyl)-5-methyl-4-(4-methylpiperazin-1-yl)-thieno[2,3-d]pyrimidine-6-carbonitrile

4-Diethylamino-2-(3,5-dimethoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxyphenyl)-4-(ethylmethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(6-Cyano-4-diethylamino-5-methylthieno[2,3-d]pyrimidin-2-yl)-benzoic acid methyl ester

4-[6-Cyano-4-(ethylmethylamino)-5-methylthieno[2,3-d]pyrimidin-2-yl]-benzoic acid methyl ester

2-Benzyl-5-methyl-4-morpholin-4-yl-thieno[2,3-d]pyrimidine-6-carbonitrile

2-Benzyl-4-[(2-hydroxyethyl)methylamino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

Methyl 4-(6-cyano-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidin-2-yl)benzoate

Methyl 4-[6-cyano-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidin-2-yl]benzoate

Methyl 4-[6-cyano-4-(dimethylamino)-5-methylthieno[2,3-d]pyrimidin-2-yl] benzoate

Methyl 4-{6-cyano-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidin-2-yl}benzoate

5-methyl-4-(methylamino)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dimethylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Ethylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(propylamino)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Butylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isopropylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(sec-Butylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isobutylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(1-Ethylpropyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(tert-Butylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopropylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopentylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-[methyl(prop-2-ynyl)amino]-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Methoxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[[2-(Dimethylamino)ethyl]amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno [2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(3-methylpiperazin-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(3,5-Dimethylpiperazin-1-yl)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(4-Acetylpiperazin-1-yl)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Aminoethyl)(methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

N-[6-Cyano-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidin-4-yl]-beta-alanine

5-Methyl-4-(1H-pyrazol-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(1H-Imidazol-1-yl)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(2H-1,2,3-triazol-2-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(1H-1,2,4-triazol-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-(methylamino)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-(ethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-(propylamino)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopropylamino)-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-(dimethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[ethyl(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-[methyl(prop-2-ynyl)amino]thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[(2-hydroxyethyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[(2-methoxyethyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[[2-(Dimethylamino)ethyl](methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-morpholin-4-yl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(methylamino)-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Ethylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(propylamino)-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isopropylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(sec-Butylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(1-Ethylpropyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(tert-Butylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopropylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dimethylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-[methyl(prop-2-ynyl)amino]-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Methoxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl) thieno[2,3-d]pyrimidine-6-carbonitrile

5-methyl-4-(4-methylpiperazin-1-yl)-2-(2-phenylethyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-5-methyl-2-(2-phenylethyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(2-phenylethyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(3-phenylpropyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(3-phenylpropyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxy-phenyl)-4-[(2-hydroxy-ethyl)-methyl-amino]-5-methyl-thieno[2,3-d]pyrimidine-6-carbonitrile

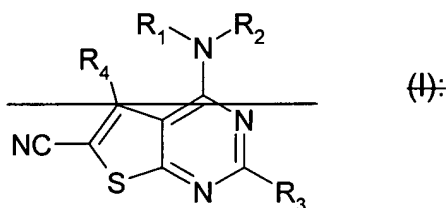
2-(3,5-Dimethoxy-phenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxyphenyl)-4-(ethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isobutylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

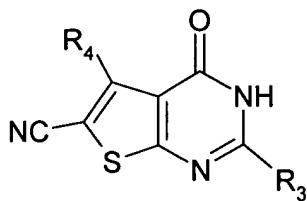
and pharmaceutically acceptable salts thereof.

- 12) (Currently amended) A process for the preparation of a compound of formula as claimed in claim 1, comprising:



~~wherein R₁, R₂, R₃ and R₄ are as defined in any one of the preceding claims~~
~~which process comprises:~~

- (a) reacting the thienopyrimidinone of formula (VI)

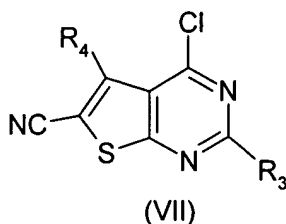


(VI)

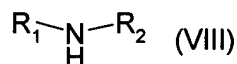
with a chlorinating agent

- (b) removing after cooling the excess of chlorinating agent

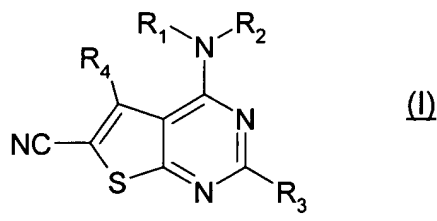
(c) optionally isolating the chlorothienopyrimidine of formula (VII)



(d) reacting the chlorothienopyrimidine of formula (VII) with an amine (VIII)



wherein R_1 and R_2 are as defined in any one of the preceding claims in a closed atmosphere at temperatures ranging from 40°C to 120 °C to produce a compound of formula (I):



and

(e) optionally preparing a pharmaceutically acceptable salt from a compound of formula (I).

- 13) (Cancelled) ~~A compound according to any one of claims 1 to 11 for use in the treatment of a pathological condition or disease susceptible to amelioration by inhibition of PDE7.~~

- 14) (Currently Amended) A pharmaceutical composition comprising at least one compound according to claim 1~~any one of claims 1 to 11 mixed with and~~ a pharmaceutically acceptable diluent or carrier.
- 15) (Cancelled) ~~Use of a compound according to any one of claims 1 to 11, in the manufacture of a medicament for the treatment of a pathological condition or disease susceptible to amelioration by inhibition of PDE7.~~
- 16) (Cancelled) ~~Use according to claim 15, wherein the medicament is for use in the treatment or prevention of T cell mediated immune diseases and diseases of the airways.~~
- 17) (Cancelled) ~~Use according to claim 15, wherein the medicament is for use in the treatment or prevention of a disorder which is asthma, atopic dermatitis, chronic obstructive pulmonary disease, Crohn's disease, type I and type II diabetes, lymphoid leukemia and other forms of cancer, multiple sclerosis, allograft rejection after organ transplantation, psoriasis, rheumatoid arthritis and ulcerative colitis.~~
- 18) (Currently Amended) A method for treating a subject afflicted with a pathological condition or disease susceptible to amelioration by inhibition of PDE7, ~~which method comprises~~comprising administering to the said subject an effective amount of at least one compound according to ~~any of claims 1 to 11~~ claim 1.
- 19) (Currently Amended) A method according to claim 18, wherein the pathological condition or disease is chosen from asthma, atopic dermatitis, chronic obstructive pulmonary disease, Crohn's disease, type I and type II diabetes, lymphoid leukemia and other forms of cancer, multiple sclerosis, allograft rejection after organ transplantation, psoriasis, rheumatoid arthritis, and ulcerative colitis.

- 20) (Currently Amended) A combination product comprising:
- a) at least one compound according to ~~any one of claims 1 to 11~~ claim 1; and
 - b) ~~another~~ at least one compound ~~selected~~ chosen from (a) PDE4 inhibitors, (b) A_{2A} adenosine receptor antagonists, (c) NSAIDs, (d) COX-2 inhibitors, (e) TNF- α inhibitors and (f) steroids;
- for simultaneous, separate or sequential use.
- 21) (New) A method for the treatment or prevention of T cell mediated immune diseases and diseases of the airways in a subject comprising administering to the said subject an effective amount of at least one compound according to claim 1.
- 22)(New) A composition comprising:
- a) at least one compound according to claim 1; and
 - b) at least one compound chosen from (a) PDE4 inhibitors, (b) A_{2A} adenosine receptor antagonists, (c) NSAIDs, (d) COX-2 inhibitors, (e) TNF- α inhibitors and (f) steroids.